## **SECRET**

NPIC/TSG/RED/SDB-039-70 15 September 1970

MEMORANDUM FOR THE RECORD

25X1

25X1

on a 940MCE

SUBJECT: Optical Resolution of the Prototype Advanced Stereo Rhomboid, Model II

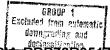
	1. On 31 August and 1 September 1970, Messrs.
25X1	ESD/EPS, and RED/SDB, visited
	for the purpose of verifying a reevaluation of
25X1	
. =	resolution of the Advanced Stereo Rhomboid as reported by
25X1	The results of the re-
	evaluation is appended as the document dated 12 August 1970.
	The determinations by Price and Haviland are appended as the
	document dated 31 August - 1 September 1970
25X1	was requested to attend this review at
25X1	because all production optical instruments
	delivered to this Building are accepted or rejected by Mr.
25X1	He is thoroughly familiar with acceptable Zoom 240
	Stereoscopes and Rhombolds and takes resolution readings on
	these instruments as a normal function of his work. Mr.
25X1	took all but a very few of the readings, and his
-0/(1	services proved to be very helpful. Indeed, without his
	services the investigation would not have been nearly as
	exhaustive and inclusive.
	3. Resolution readings were taken on three different
	Zoom 240 Stereoscopes with no rhomboid arms attached and
	with 10S, 15X, and 20X eyepieces. Two of these stereoscopes
	were mounted with the prototype Advanced Stereo Rhomboid
	and resolution readings taken with the 1x, 2x, and 3x ob-
	jective lenses of the rhomboid. Resolution was determined
	with the various configurations of the instrument mounted

4. Several general comments may be made based on the resolution data:

steel surface plate, and hard mounted on the granite base of an optical bench equipped with air bearing isolation supports. A compilation of the resolution data is appended

SECRET

as a table of resolution readings.



light table, hard mounted on a massive

Declass Review by NIMA/DOD

25X1 25X1

25X1

SUBJECT: Optical Resolution of the Prototype Advanced Stereo Rhomboid, Model II

- a. The resolution of optics mounted on a light table is strongly affected by vibration. These resolution values are similar to the reportings during the T&E period of the prototype Advanced Stereo Rhomboid
- b. The 10S, or tilting eyepiece, is appreciably poorer than the 15% or 20% eyepieces used.
- c. As vibration is increasingly isolated, the resolution of the rhomboids increases. With the IX rhomboid objectives, resolution is achieved that is one resolution target step below the resolution of the stereoscope alone.
- d. Rotation of the Pechan prism that affects image rotation has an effect on resolution.
- e. Optical misalignment of the rhomboids with the stereoscope does not apparently cause any serious degradation of resolution. Resolution did not appreciably vary with use of the 1186TA pod, which was reportedly aligned to the stereoscope, and with use of the 280BF pod which was not aligned. However, this misalignment may affect other optical parameters.
- f. Resolution did not increase dramatically when the optics were hard mounted on the air bearing optics bench. However, the confidence level in reading increased and more observations were made at the higher of two levels previously observed on the steel surface plate.
- 5. The resolution data substantiate the results of the reevaluation as reported in their letter of 12 August 1970.

25X1

6. With all of the rhomboid objectives, resolution is achieved that is one resolution target step below the objectives for the prototype development. The next step on the resolution target is above the development objectives and equals the resolution achieved by the stereoscopes without the rhomboids attached.

## Approved For Release 2004/05/05 : CIA-RDP78B05171A000600010030-0

SUBJECT: Optical Resolution of the Prototype Advanced Stereo Rhomboid, Model II

7. The prototype Advanced Stereo Rhomboid has previously been determined to be an acceptable instrument in all major objectives except for resolution. These resolution data indicate that the instrument is also acceptable with respect to resolution achieved.

Project Monitor
TSG/RED/3DB

25X1

Attachments:

1. Letter
(dated 12 Aug. 70)
2. Document dated 31 Aug. - 1 Sept. 70

Distribution:

Original - Route & File

1 - Chief/IEG (Attn:

1 - Chief/TSG/ESD

1 - Chief/IAS (Attn:

1 - Contract File

1 - RED/SDB/Chrono

25X1

25X1

Approved For Release 2004/05/05 CIA-RDP78B05171A000600010030-0